

THAT WHICH IS CLAIMED IS:

1 25. A method for dynamically tuning a directional antenna of a
2 wireless device for communicating with an access point in a
3 short-range wireless networking environment, comprising the
4 steps of:

5 providing at least one wireless device;

6 providing at least one access point;

7 establishing a network link between a selected one of the
8 wireless devices and a selected one of the access points using
9 the directional antenna of the selected wireless device and an
10 omnidirectional antenna of the selected access point; and

11 setting a position of the directional antenna to minimize a
12 bit error rate along the established link.

1 26. The method according to Claim 25, wherein the step of
2 setting the position of the directional antenna further
3 comprises the steps of:

4 positioning the directional antenna at a plurality of
5 angles toward the omnidirectional antenna;

6 recording the bit error rate at each of the angles; and

7 selecting one of the angles which exhibits a minimal value
8 of the bit error rate to be the position of the directional
9 antenna.

1 27. The method according to Claim 26, wherein the plurality of
2 angles are selected by first locating an initial position beyond
3 which communication using the directional antenna is not
4 possible.

1 28. The method according to Claim 25, further comprising the
2 step of setting a power of transmission of the directional
3 antenna to a minimum value required to communicate on the
4 established link.

1 29. The method according to Claim 28, wherein the step of
2 setting the power of transmission of the directional antenna
3 further comprises the steps of:

4 setting the power of transmission to a default value;
5 recording a bit error rate at the default value;
6 successively reducing the power of transmission until
7 connectivity is lost or the bit error rate crosses a threshold;
8 and

9 setting the power of transmission to be a value that
10 results in the bit error rate staying below the threshold.

1 30. The method according to Claim 29, wherein the threshold is
2 a maximum acceptable value for the bit error rate.

1 31. The method according to Claim 25, wherein the selected
2 wireless device is an extension point device.

1 32. The method according to Claim 25, wherein the selected
2 wireless device is an end-user device.

1 57. Computer program instructions for dynamically tuning a
2 directional antenna of a wireless device for communicating with
3 an access point in a short-range wireless networking
4 environment, the computer program instructions embodied on one
5 or more computer readable media and comprising:

6 computer program instructions for communicating with at
7 least one wireless device;

8 computer program instructions for communicating with at
9 least one access point;

10 computer program instructions for establishing a network
11 link between a selected one of the wireless devices and a
12 selected one of the access points using the directional antenna
13 of the selected wireless device and an omnidirectional antenna
14 of the selected access point; and

15 computer program instructions for setting a position of the
16 directional antenna to minimize a bit error rate along the
17 established link.

1 58. The computer program instructions according to Claim 57,
2 wherein the computer program instructions for setting the
3 position of the directional antenna further comprise:

4 computer program instructions for positioning the
5 directional antenna at a plurality of angles toward the
6 omnidirectional antenna;

7 computer program instructions for recording the bit error
8 rate at each of the angles; and

9 computer program instructions for selecting one of the
10 angles which exhibits a minimal value of the bit error rate to
11 be the position of the directional antenna.

1 59. The computer program instructions according to Claim 58,
2 wherein the plurality of angles are selected by first locating
3 an initial position beyond which communication using the
4 directional antenna is not possible.

1 60. The computer program instructions according to Claim 57,
2 further comprising computer program instructions for setting a
3 power of transmission of the directional antenna to a minimum
4 value required to communicate on the established link.

1 61. The computer program instructions according to Claim 60,
2 wherein the computer program instructions for setting the power
3 of transmission of the directional antenna further comprise:

4 computer program instructions for setting the power of
5 transmission to a default value;

6 computer program instructions for recording a bit error
7 rate at the default value;

8 computer program instructions for successively reducing the
9 power of transmission until the bit error rate crosses a
10 threshold; and

11 computer program instructions for setting the power of
12 transmission to be a value that results in the bit error rate
13 staying below the threshold.

1 62. The computer program instructions according to Claim 61,
2 wherein the threshold is a maximum acceptable value for the bit
3 error rate.

1 63. The computer program instructions according to Claim 57,
2 wherein the selected wireless device is an end device.

1 77. A system for dynamically tuning a directional antenna of a
2 wireless device for communicating with an access point in a
3 short-range wireless networking environment, comprising:

4 at least one wireless device;

5 at least one access point;

6 means for establishing a network link between a selected
7 one of the wireless devices and a selected one of the access
8 points using the directional antenna of the selected wireless
9 device and an omnidirectional antenna of the selected access
10 point; and

11 means for setting a position of the directional antenna to
12 minimize a bit error rate along the established link.

1 78. The system according to Claim 77, wherein the means for
2 setting the position of the directional antenna further
3 comprises:

4 means for positioning the directional antenna at a
5 plurality of angles toward the omnidirectional antenna;

6 means for recording the bit error rate at each of the
7 angles; and

8 means for selecting one of the angles which exhibits a
9 minimal value of the bit error rate to be the position of the
10 directional antenna.

1 79. The system according to Claim 78, wherein the plurality of
2 angles are selected by first locating an initial position beyond
3 which communication using the directional antenna is not
4 possible.

1 80. The system according to Claim 77, further comprising means
2 for setting a power of transmission of the directional antenna
3 to a minimum value required to communicate on the established
4 link, further comprising:

5 means for setting the power of transmission to a default
6 value;

7 means for recording a bit error rate at the default value;

8 means for successively reducing the power of transmission
9 until the bit error rate crosses a threshold; and

10 means for setting the power of transmission to be a value
11 that results in the bit error rate staying below the threshold.

1 81. The system according to Claim 80, wherein the threshold is
2 a maximum acceptable value for the bit error rate.